

# The role of beverages in the wage payment system of Achaemenid Iran

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## Abstract

Intoxicating drinks were common in Ancient Persia. Achaemenid fortification tablets, median rhyton, Nyssa Parthian epigraphy, Sassanid dishes demonstrate evidences of such beverages' application. These products were also used for cheering, refreshment as well as curing in addition to their nutritional values; thus, they were largely popular in most ancient civilizations. Wine and beer had different functions in ancient Iran including their use in religious ceremonies, royal celebrations, medical treatment as well as being offered as gifts. Studying Achaemenid tablets also reveals the other special uses of wine and beer in Achaemenid Iran for providing some portions of taxes, wages and food ration. The purpose of this research is to study the role of beverages in the wage payment system of Iran at the Achaemenid age; thus, it descriptively analyzes various sources. The results show that some rations paid in the Achaemenid age included beer and wine. These rations were assigned to high-ranking officials, worker supervisor, referees and accountants, Pars laborers, court women, bridesmaids, postpartum women, couriers with administrative mission, and even some animals. Thus, research results show that beverages were used for more than just religious and royal celebrations; it seems in order to know more about Iran's ancient culture and civilization, the role of these beverages should be studied beyond the areas studied in this paper.

**Keywords:** Beverages, wine, beer, tax payment system, Achaemenid age

## Introduction

Primitive man's entry into the first stage of agricultural development was a great revolution in his life which led to many advances in various aspects of his life. Wheat and barley as two major agricultural products provide a great amount of mankind's food supplies and are used for other cases as well. Wheat and barley as two major agricultural products, not only provide a great amount of food requirements but have also drawn mankind's attention for other purposes as well. Humans' accidental and empirical acquaintance with fermentation has helped them produce alcoholic drinks from vegetables and various fruits such as barley, date and grape. Consumption of such drinks caused various states such as euphoria, pleasure, relaxation and refreshment in humans which could be considered a good way to take one's mind off trouble under difficult primitive living conditions away from facilities and comfort. Primitive man's simple mind considered these mental states as miraculous and paranormal which beside the benefits of these beverages, lead to them finding sanctity and reverence in peoples' opinion such that the majority of ancient civilizations used products such as wine and beer and local drinks in religious ceremonies and rituals. Therefore, wine had an important role in ancient Iranian peoples' life. By reviewing Persepolis bureaucratic tablets we discover that wine was part of the daily food ration of most people. Sometimes ordinary workers were rewarded a little wine as a gift or on the occasion of celebrations. In any case, wine consumption in pre-Islamic Iran compared to Greece is extreme (Koch, 2010, 207).

When the use of beverages in ancient Iran is taken into consideration, it is often in the context of a party and feast, and various sources refer to the foods and beverages of kings' table; while investigation of various texts and sources imply the use of beverages for various things such

as gifts and offerings, improvement of relations and in payment systems. In this paper, beside a brief introduction of beverages' applications, a comprehensive discussion about their applications for offerings, improvement of relationships and payment systems will be provided.

### **Beverages and offerings – gifts**

In some cases wine and beer are given as gifts and rewards. In one of the cases in which wine was given as a gift, postpartum women are mentioned, although the term "Kurtaš" is not used to referred to them, but the tablets mention female workers whose specialization is mentioned in some cases, these women usually received wine, beer and flour, if the newborn baby was a boy, the ration was doubled, for example 10 liters of wine or beer for mother who gave birth to a son and give liters for a mother who gave birth to a daughter. Several tablets indicate that ever mother received wine or beer as well as cereal. Some of these mothers were honored with excellent rations (kamakaš) and were actually rewarded. In one case, fifteen liters of wine is paid for an unknown reason. In fact these rations were as extra rations and reward. It seems that this extra ration enabled mothers to get up from childbed more quickly and feed their child with their own breast milk properly. It can also be assumed that maybe in Ancient Iran, the role of beer in increasing mothers' breast milk was discovered (Brian, 2012, Vol. 1, 722). Maybe kamakaš (excellent ration) was some wine given to midwives to be used for women's pain relief. The Elamite tablets frequently speak of people working as midwives. They were assigned to workers by the office of the court. It seems that parturients received wine from midwives for pain relief (Hinz, 2008, 253).

One of the traditions of the Persians which has drawn the attention of foreign authors are the gifts given to a king by the people on his travel to different locations. Aelianus (Li Yen) quotes: "As a tradition, when the caravan of Achaemenian Artaxerxes II passed near farm fields and villages, Persian farmers used to give gifts to the king according to their own wealth. All the people working on a field and directly exploit the land, do not have anything too valuable to offer; some offer a bull, some a sheep and some people offer wheat and other give wine. All of these are called "gifts" or "dōron" and the king accepts them as gifts. Apparently, non-compliance with this tradition would cause embarrassment (Brian, 2012, Vol. 1, 319). As the tablets show, the kings were eager to show themselves as supporters of the earth and farmers, and this class, consisted of poor people owning small fields who worked on those lands with their own expenses and the kings would meet them in their journeys.

### **Beverage and relationship improvement**

Beverages were influential in improving and strengthening relationships. "Cyrus II had found out from the beginning that in humans' relationship with each other, no type of cheap kindness is as good as sharing one's own food and wine with another person. To put this into practice, he ordered that the same food be placed on his table that is placed on the tables of others" (Xenophon, 2012, 51).

In Anabasis this trait has also been attributed to Cyrus the Younger and it is written: "whenever a truly pleasant wife was given to Cyrus, he would send half of the jug of wine to his friends. This showed his attention for his friends and winning their hearts" (Xenophon, 1996, 138). This trait in Cyrus the Younger was the reason for his popularity amongst his friends and their loyalty to him.

### **Beverage and payment system**

Persepolis fortification tablets show that some of the rations distributed by Achaemenid kings included wine and beer. These rations were assigned to high-ranking officials, worker supervisor, referees and accountants, Pars laborers, court women, bridesmaids, postpartum women,

couriers with administrative mission, and even some animals. In the following, the role of beverages in various fields of the payment system will be comprehensively discussed.

### ***Kurtaš***

King and royal family and major heads of administrations all over the country had workers who were so called "Mania" or "Garda" (or Kurtaš in Elamite). Gardas were marked and used for construction, agriculture and industry. These usually were prisoners of war. Some researchers believe that the poorest class of Iran's farmers were also turned into Gardas since 5th century BC. Gardas who were in agriculture usually resided in villages, they did not receive their daily rations from the imperial treasury, but received silver and commodities in the form of sheep and wine etc. They used some of these commodities "directly" and exchange some others for food, clothes and other necessary items (Diakonoff, 1966, 162, 163). There are different opinions about Kurtaš, for example in an article titled "Social classes in ancient Iran" written by Skjaervo et al., Kurtaš were recognized as a group of non-Iranians who were under the authority of the Achaemenids and worked in Persepolis construction, agriculture and animal husbandry in Pars, they were hired and employed workers and were gathered from various regions (e.g. Babylon, Egypt, Lydia, etc.) and were assigned to permanent or temporary jobs (Skjaervo, 2002, 22). Concerning wage payments, according to Persepolis fortification tablets (pf. tablet 6), 20% of the payments done by distribution of wine or beer (Yamauchi, 2014, 423). The main reference for the Achaemenid economy are the cuneiform texts discovered in the Persepolis in Neo-Elamite language. The difference between "treasury tablets" and "fortification tablets" is that in treasury tablets, wage payment using mere commodities was abandoned and payment was more or less done using silver. Since the time period of both tablet types is in the years 492 to 494 BC, this transformation has been associated with the introduction of the coinage system during the time of Darius I. Measurement was done using one unit of Karsha which equals ten shekels, and or 83 grams of silver. Of course, payment was not limited to silver and commodities were also given as payment, for example, one sheep equaled 3 shekels and one jar of wine was equal to one shekel. Therefore, it was concluded that the monetary system gradually replaced the commodity system. Until 480 BC, payment was measured with silver but done with commodities. Since that date on, one-third was with silver, since 470 BC, half of it was with silver and since 467 BC, even two-thirds of it was done with silver (Altheim, 2002, 5). There are documents from the last years of the reign of King Xerxes and the third year of the reign of Artaxerxes I that show the full return of the commodity system which sheep and wine were paid as payment (Altheim, 2001, 6). According to the Persepolis fortification tablets, the wages of each worker class was specifically determined. Type of career, position and specialization, age and gender were all influential in determining their ration. For example, the wage of a magus tasked with preparing Haoma and wine, was more than 12 jars of wine in a year. Amongst specialists, i.e. technical workshop workers, the highest wages were paid to armorsmiths, coppersmiths, winemakers and beer makers (Rawandi, 1985, Vol. 5, 35, 37). The treasury tablets speak of the wage of a tuber who made clay containers for the court house wine. These containers had a capacity of 20 to 500 liters. The wage the tuber received for making each container was equal to 5.40 gold marks or the price of a sheep; this means that for every container of wine, he received three jars of wine, and instead of money, he was paid with wine. It seems that the tuber was completely satisfied with this wage because he was able to sell these wines above the government tariff price (Hinz 2008, 350). Given the low wage of workers, some of them probably exchanged the wine in market they received as wage to provide their requirements. Heavy duty workers also received "bonus ration". The amount of these handouts depended on the type of work, but unfortunately more information is not available. In addition to wheat or barley, workers were also given grilled oats, barley sprouts with wine or beer, dates and almonds (Koch, 2010, 62).

### ***Court women***

Of the applications of wine and beers, royal banquets must be mentioned. In Achaemenic Iran, the main beverage of wine, but they also drank beer. It seems that the wives of a king, held separate banquets for themselves. For example, according to a narration, the wife of Darius I received large amounts of wine (Brosius, 2013, A, 74). This text belongs to the 19th year of Darius I's reign, that is, Farvardin (Iranian month, around March) 520 BC. Based on this document, large amounts of food supplies were paid for the New Year and special ceremonies that the wife of Darius held in this period. The amount of the wine considered, based on Persepolis fortification tablets (pf 1795) was 2000 quarts<sup>1</sup> (Brosius, 2013, B, 207).

### ***Senior women***

The empress had vast amounts of properties which they managed on their own. Also, production workshops across various areas of Pars belonged to them, in which many workers worked and male and female supervisors ran them. Female worker supervisors who were called "Arashareh", received some of the highest rations in Pars. Their usual ration included 30 quarts of wine, 50 quarts of cereal and four sheep per year. These women might even had received rations higher than those of male workers. Different amounts of rations show that these workers did specialized works and received a ration according to their level of skills (Brosius, 2013, B, 204, 205).

### ***Travelling ration***

Travelling rations were given to individual or groups who travelled to various areas of the kingdom on an administrative mission. The travelers were accompanied by some guides. Traveling was done with camels and horses and their animals also received fodder rations and even wine. Rations were registered by royal stocks scribes (Brosius, 2013, B, 220, 221). In the book of Achaemenid history, Sami mentions a document which was related to the travelers' ration and was recently discovered. This leather satchel which was found on the Nubian border (south of Egypt, present day Sudan), contains the commands of Arsames ruler of Egypt by Artaxerxes I (403-455 BC) in Aramaic. One of the letters is an introduction and passport letter for the travel of Arsames' representative named Nahti Hur to Egypt, in which Arsames orders his agents in those areas to prepare the catering equipment for Nahti Hur. The content of one of the texts which addressed his agents is as follows: "One person named Nahti Nur, my agent will travel to Egypt. From my properties that are in your territory, give him two cups of white flour, three cups of average flour, two cups of wine or beer and one sheep, and for his attendants who are ten people, give one cup of flour for each, and fodder based on the number of their horses and for the two Kilikias and one craftsman all three of whom are my servants travelling to Egypt, give one cup of flour every day" (Sami, 2007, Vol. 1, 261).

### ***Military ration***

It seems that the use of wine and beer was part of peoples' daily rations and in emergency situations such as war, a part of the military ration was provided with wine and beer. Authors have described Achaemenids military caravans' baggage as being long and crowded and have written that part of it carried luxury furniture instead of necessary military equipment. Persian nobles were accompanied by their servants and wives at wars. Separate foods, king's great tents and valuable furniture, golden dishes, tub, bathtub, perfume and bowl, cup and Gold cups were of necessary travelling equipment. All individuals, even the authorities had a fixed ration. Sometimes logistics were prepared to be sold to soldiers. Chariots full of barley and wine were carried so if there was no buyable commodity, they would be distributed amongst soldiers (Head, 2012, 117, 118).

<sup>1</sup> The measurement unit of liter, one quart equals 97% of a liter.

Among the archaeological findings of a number of tools, weapons and utensils of the barracks and soldiers of The Immortals, it is discovered that despite not having any comfort or joy and living under hard conditions, these soldiers received large amounts of beverages; this is shown by pots, long jars for beverages with a pointy bottom, special jugs, sip pouring bowls from which beverage was directly poured into one's mouth (Avmstd, 2008, 227). The application of these products can be due to a high nutritional value and also due to a lack of access to clean water, because soldiers sometimes had to spend months at war and away from their lands.

#### ***Beverage and tax payment***

During the Achaemenid age, there were different methods of land ownership. One of these methods was "ustarbar" (provision of land and bows) which was managed by paid servants. These servants-agents were called "paqdu" or "ustarbar". All private properties on which people cultivated included a tax in which king's share "ziti šarri" was included, of course this excluded "uzbarra" which were royal properties (Daryayi, 2014, Vol. 3, 507). This way, a part of the taxes were taken from agricultural lands and their products. Darius I had exempted special families specially those who had helped him conquer Gaumata; but the number of these families must not have been much. Because Persepolis fortification tablets show that much tax was taken from even the Persians in the land of Pars (Koch, 2010, 70).

For the administrative court of king, the most important tax was the one which was directly used. Barley, date, nuts, oil, goat, sheep, cow and horse and also the skin of slain animals were of tax items. Tax had different variations one of which to mention was called "Kosur". The amount of this special tax for a barley is 1-30th, and for wine it is 1-10th which was received in addition to the normal tax (Koch, 2010, 72).

Officers collecting tax were assigned by king and the amount of the tax taken was considered one tenth of a product. The Elamite Persepolis fortification tablets show that the farmers of central Iran also had to pay one-tenth of their wine product as their tax (Yamauchi, 2014, 85). Satraps had to establish food and ammunition stock on routes, as Xenophon describes "flour, wine and barley were prepared by the local satrap, abundantly" (Brian, 2013, Vol. 1, 615). A large part of the king's stocks were filled using the taxes collected for different reasons from all over the Achaemenid territory, and only a part of the royal wine cellars could be the products of the royal vineyards and most of them were collected taxes. Also out of the five storage locations of Persepolis, one was dedicated to wine and beer (Hinz, 2008, 296). Based on several documents of the periods of Cyrus and Cambyses, Babylonian temples also had to give food products to the court and temples were obliged to burrow large amounts of money to carry out this order. In 528 BC, within a short period of time, the Eanna temple was ordered to transport two hundred casks of sweet date beer to the royal palace at Abanu (Brian, 2013, Vol. 123). Given the vastness of the Achaemenid territory, an important part of the government revenue was provided by the people and the territories under their control. Agricultural lands also paid a fixed share of their products as tax and this rule was in place until the Sassanid era.

#### ***Beverages as rations for holding religious ceremonies:***

Given the Achaemenid policy of religious tolerance, no single religion can be mentioned; beside Ahurmazdā, the gods and the goddesses of the Elamite, and Babylonian, etc. were respected and worshiped. Religious ceremonies were held by priests with the presence of King and a special ration was considered for holding these ceremonies. What the administrative apparatus delivered for sacrifice and vow were mainly cereals, beer or wine. Probably, liquid products which were mostly honey and wine, were used for spraying (Brian, 2012, Vol. 1, 403, 404). The Achaemenid age was a good sample of cooperation amongst various priests and different operators, most notably šatinš, Magi and haturmakshas were involved in the execution of religious ceremonies.



### *Šatinš*

The term *šatinš* means "religious man" or "priest". *Šatinš* were responsible for the sacrifices given to alien gods worshipped in Pars and also responsible for the ceremony of Ahurmazdā, mountains and rivers (Brosius, 2013, B, 225). *Šatinš* were sometimes tasked with giving offerings to Iranian gods and as such, sometimes Iranian magi were tasked with giving offerings to Elamite gods. In some scenes, priests are seen with mortar and pestle which seem to be used for squashing plant materials for obtaining some sacred liquid. In some carvings, a plate is seen along with mortar and pestle. In treasury excavations in Persepolis, a collection of mortar and pestle and plate of green stone material are discovered some of which along with Aramaic inscriptions show their relationship with religious ceremonies. These items were used in the ceremony of plant squashing which seems to have been Haoma plant (Razmjy, 2013, 332). Researchers believe that these dishes were endowed by authoritative personalities who were followers of the Haoma cult. Amongst the remaining dishes, even some cups and bowls used for drinking Haoma are found (Boyce, 1997, 223). The practical use of Haoma as an intoxicating drink in Iran is confirmed by an Achaemenid treasury seal whose date is for Xerxes age and shows two priests next to a fire temple with mortar and pestle. Also in fortification tablets, the term Haoma is used as the names of several people (such as the proper names of Achaemenid documents in Aramaic language) (Gershevitch, 2004, 592). This shows that Haoma beverage was used in Achaemenid age. In historical references, the reuse of Haoma in 497 BC is mentioned, and it is said that Xerxes promoted the reuse of Haoma. There are also some stamps left of him which show a gathering of the Haoma cult (Hinz, 2008, 372).

According to Persepolis documents, beside gods and goddesses, sacrifices were offered to natural forces such as mountains, rivers and special locations.

**Table 1: Persepolis fortification tablets (pf) 339**

Gods	Position	Quantity of wine ration
Ahurmazdā	Persian deity	7 quarts
Humban	Elamite God deity	20 quarts
Hopotiš	River	10 quarts
Rankare	River	10 quarts
Šušunuš	River	10 quarts

(Brosius, 2013, B, 224)

In the texts related to payments, a group of ceremonies are mentioned the most common of which was Lan held by magi. It is not clear in any of the texts which mention Lan, that for which deity or deities these ceremonies were held, but in tablet 759, the religious ceremony was for Ahurmazdā (Brosius, 2013, B, 225). In that ceremony, the offerings and sacrifices were in the form of food and beverage which included small livestock, wheat, flour, figs, dates, wine and beer. In some texts it is written that Kurtaš used this very offerings (Razmjy, 2013, 333).

### *Sacrifice*<sup>2</sup>

As was mentioned, Achaemenid kings respected the gods of other nations, attended their religious ceremonies, offered sacrifices and worshipped them and sprayed wine in front of them. There was a term for offering wine to the gods. This term was "daucā" which matches the Avestan "zaōθrā" (Gershevitch, 593, 2005). Some references speak of sacrifices considered for temples. Elamite treasury tablets concerning Darius speak of sacrifices assigned to various temples. For Elamite temples still located in Pars, Darius had determined some sacrifices from his stocks. The king was the only one who sent daily sacrifices to these temples. The stocks inventory differed

<sup>2</sup> Property given to be saved from disasters

based on the importance of temples. Usually, Zoroastrian temples received one cup of flour, one thirds of a cup of wine or sometime beer. Wine or beer were apparently offered as beverages. All the given sacrifices were distributed among the nurses, friends and relatives of the person giving the sacrifice and also amongst the poor. The morning ceremony was held and one magus and one azarban in the temple were tasked with protecting it (Hinz, 368, 2008). Achaemenid kings also considered sacrifices for other temples. Given the religious passion of Cambyses, he was one of the kings guarding temples and cults. In Egypt, Cambyses personally goes to Sais and bows to the goddess and offers his sacrifices. Like all the previous pharaohs, he performs the wine spraying tradition for the god of immortality (Osiris) (Brian, 2012, Vol. 1, 97). Herodotus says: when the armies of Xerxes arrived in the city of Troy, he sacrificed a thousand cows for Athena in Ilion and magi sprayed wine for heroes (Herodotus, 2009, Vol. 2, 777). In general, food rations during religious ceremonies had been one of the ancient traditions of all nations and civilizations and religious ceremonies and rituals were common everywhere especially in Iran.

### ***Tomb ration***

Based on the tablets remaining from the Achaemenid era and the reports of Greek authors, an especial ration was considered for the tomb of Cyrus in Persepolis by the order of Cambyses. After describing the tomb of Cyrus, Arian states that in the tomb, a magus was responsible for protecting the grave and since the time of Cambyses, the duty of this magus would be inherited by his son. The king usually gave them a sheep, a fixed amount of flour and wine every day and one horse for sacrifice a month (Kurt, 2004, 98). Apparently, this ration was only considered for the tomb of Cyrus and it is not mentioned in references concerning other kings.

### **Conclusion**

In this study, the role and application of beverages in ancient Iran, particularly in the Achaemenid age was investigated and after a review of the role of beverages for offering gifts and relationship improvement, their role in payment and tax system was discussed. Investigation of Persepolis fortification tablets and also various books and articles in this area showed that beverage such as wine were used in paying the ration of Kurtaš, court and senior women, travelling ration, military ration, and the expenses of religious ceremonies; also in the tax payment system, a review of sources showed that farmers had to pay one-tenth of their wine products as tax. Therefore, the results of this study showed that the application of beverages was way more extensive than just religious and royal ceremonies and celebrations and it seems that, in order to know more about the culture and civilization of ancient Iran, it is valuable to investigate the role and position of beverages beyond the areas studied in this article.

### **References**

- Altheim, F. R., Altheim-Stiehl., & Göbl, R. (2003). *Feudalismus unter den Sasaniden und ihren Nachbarn* (Trans: H. Sadeghi), Tehran: Elmifarhangi publishing
- Boyce, M. (1997). *A History of Zoroastrianism* (Trans: H. Sanatizadeh), second edition, Tehran: Tus publications.
- Brian, P. (2012). *From Cyrus to Alexander: A History of the Persian Empire*, vol, 1 & 2 (Trans: M. Saghebfar), Tehran, Tus publications.
- Brosius M. (2013). *The Ancient Persians* (Trans: I. Abdi), second edition, Mahi publication.
- Brosius M. (2013). *The Persian Empire from Cyrus II to Artaxerxes I* (Trans: H. Mashayekh), second edition, Mahi publications
- Curtis, J., & Talys, N. (2013). *Achaemenid* (Trans: Kh. Bahari), Tehran: Farzanruz publications.
- Daryaei, T. (2014). *Administration in ancient Persia: A comprehensive History of Iran* (Trans: Kh. Rezakhani), Iran, Tehran, Center for the Great Islamic Encyclopedia, p.497-530.

- Diakonoff, M. (1967). The History of Ancient Persia (Trans: R. Arbab), Bongahe Tarjome va Nashre Ketab.
- Gershevitch, I. (2006). Persians History in Achaemenid Period (Trans: B. Shalkoni), Iran, Jami publications.
- Head, D. (2012). The Achaemenid Persian Army (Trans: M. Aghajeri), Tehran: Ghoghnoos publications.
- Heroduts (2010). The Histories of Heroduts, Vol. 1 & 2 (Trans: M. Saghebfar), Tehran: Asatir publications
- Hinz, W. (2008). Darius und die Perser: e. Kulturgeschichte d. Achämeniden (Trans: P. Rajabi), Tehran: Mahi publications
- Jamali B. (2015). A Study on Ritual And Intoxicating in Ancient Iran, M.A.Thesis of Ancient Iran, Islamic Azad University, Tehran Central Branch, Iran.
- Koch, H.M (2008). es kündet dareios der könig (Trans: P. Rajabi), 14th edition, Tehran: Karang publications.
- Kuhrt, A. (2006). The Persian Empire: A Corpus of Sources from the Achaemenid Period , 1st Edition.
- Olmstead A.T. (2009). History of the Persian Empire Achaemenid period (Trans: M.Moghadam,), Elmi Farhangi publication.
- Rawandi, M. (1985) .Iran's social History, The Economic life of the Iranian people from the beginning to present, Vol. 5, Kasra publication.
- Sami, A. (2009), Achaemenid civilization, Vol. 1&2, Tehran: SAMT publications
- Shaki,M. (2002). Class system III. In the Partian and Sassanian Period, Encyclopaedia Iranica, 5,652-658.
- Xenophon (1996). Anabasis (Trans: A. Birshak), Tehran: Ketabsara publications
- Xenophon (2013). Cyrupedia (Trans: R. Mashayeki), 8th edition, Tehran: Elmifarhangi publications.
- Yamuachi E. M. (2014). Persia and the Ancient Religions (Trans: M. Pezeshk), 2th edition, Tehran: Ghoghnoos publications